How to Select Research Papers for Course Project

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A few initial comments

- You must select 3 or more *related* papers–they must be related in some way that makes sense.
- Best to get started early and work incrementally
- Use already available data and try on small datasets and models first (or used pretrained models and finetune)
- I would avoid
  - Reinforcement learning (setup is time-consuming) or video processing
  - State-of-the-art "fancy" papers unless you can find pretrained models and plan to extend in interesting way. (Newest papers often take many, many hours of GPU training.)

One possible process

1. Select high-level area of interest
   i. Artificial Intelligence – AAAI*, IJCAI
   ii. Machine Learning – NeurIPS*, ICML*, ICLR*, AISTATS, UAI, JMLR
   iii. Computer Vision – CVPR*, ICCV, ECCV
   iv. Natural Language Processing – ACL*, NAACL, EMNLP
2. Find most cited papers in these conferences via h5-index on Google scholar
3. Open papers that seem interesting to you
4. Read abstracts of these papers to narrow your selection
5. Download full papers and skim

Two approaches to finding paper titles

- Google Scholar Metrics (most cited papers)
  - https://scholar.google.com/citations?view_op=top_venues&hl=en
  - Click magnifying glass in top right
  - Search for conference (top right)
  - Click hyperlink number under “h5-index”

- Go to venue website (“accepted papers” or “proceedings”)
  - http://jmlr.org/papers/
  - https://papers.nips.cc/book/advances-in-neural-information-processing-systems-31-2018

Expanding based on one paper

- (Backward) Read paper and find key references of paper
  - Most papers based on one or two previous papers

- (Forward) Find papers that cite this paper
  - Google scholar again ☺
  - Example for ICML 2017 paper “Attention is All You Need”: https://scholar.google.com/scholar?hl=en&as_sdt=0%2C15&q=Attention+is+All+you+Need&btnG=

Concluding thoughts

- Tutorials at conferences can be great resources for an overview of a topic (many recent ones have videos and slides)
  - ICML 2019 Tutorials
  - NeurIPS 2019 Tutorials

- Do not expect to understand after reading once
  - Most papers will take multiple (if not many) reads to understand (especially when you're new to the field)
  - Do not be discouraged because it is challenging